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Supporting Information to:

**Strategies for the Synthesis of Lanthanum Dialkyl Complexes with
Monoanionic Ancillary Ligands**

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In situ alkylation of $\text{LaBr}_3(\text{THF})_4$. A mixture of $\text{LaBr}_3(\text{THF})_4$ (66 mg, 0.1 mmol) and 3 equiv of $\text{LiCH}_2\text{SiMe}_3$ (28 mg, 300 μmol) was dissolved in $\text{THF-}d_8$ at ambient temperature. ^1H NMR (500 MHz, $\text{THF-}d_8$, 20 $^\circ\text{C}$): δ -0.21 (s, 27H, SiMe_3), -0.93 (s br, 6H, CH_2Si). $^{13}\text{C}\{^1\text{H}\}$ NMR (125.8 MHz, $\text{THF-}d_8$, 20 $^\circ\text{C}$): δ 49.0 (br, CH_2Si), 5.69 (SiMe_3). In similar fashion, samples with La : Li ratios 1 : 4 and 1 : 5 were made. Their ^1H NMR spectra are shown in Figure 1.

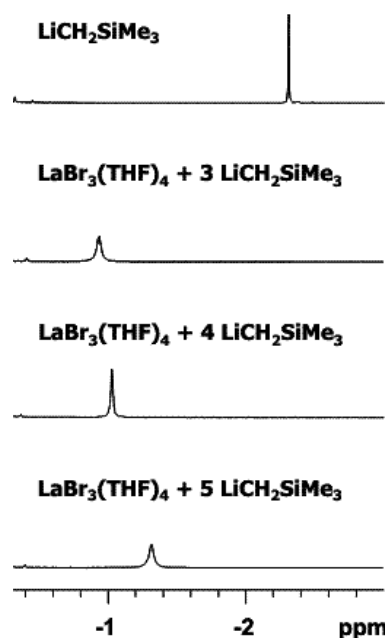


Figure S-1. ^1H NMR spectra ($\text{THF-}d_8$, 25 $^\circ\text{C}$) of sequential reaction of $\text{LiCH}_2\text{SiMe}_3$ with $\text{LaBr}_3\text{THF}_4$.